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PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN § PUBLIC UTILITY COMMISSION
§ OF TEXAS

COMMENTS OF SIERRA CLUB

The Sierra Club, a 501(c)(4) organization with a chapter in Texas known as the Lone Star Chapter is submitting these written comments in PUC *Project No. 52373 - Review of Wholesale Electric Market Design*. The Lone Star Chapter of the Sierra Club has over 27,000 members in Texas, the vast majority of whom are electric consumers in the ERCOT market. In addition, our professional staff -- and at times volunteers -- are frequent participants at the PUC, at ERCOT and at the Legislature on electric issues. We are also a member of ERCOT and our Conservation Director serves on ERCOT's Reliability and Operations Subcommittee as a voting member as a small commercial representative.

First, we agree with the Commission that the events of February 2021 warrant a broad look at market design and potential reforms, a process that is also supported by the actions taken by the Legislature in passage of SB 3. While there is no doubt that the “market” failed to deliver adequate supply in February, leading to black-outs, the death of hundreds of Texans, and directly harming millions of other Texans, blaming the event or its outcomes on the market design is wrong. The failures are much broader than just market design. Most importantly, they include not only the failure to require robust, enforceable weatherization of power plants, but also the failure of the gas supply system to get gas to the power plants. This is further evidenced by previous events in 1989 and 2011. Both Governor Abbott and previous Governors, as well as previous commissioners failed to heed years of warnings about the need to weatherize power plants and gas production facilities. Indeed, we remain concerned that even with the passage of SB 3, the legislature failed to set specific deadlines for gas and electric companies to weatherize production, transport, and generation facilities.

We also continue to be concerned about the large costs incurred during the February event, and the decision to pass those costs onto consumers rather than power generators or gas companies. Particularly concerning is that gas producers that reaped windfall profits made large contributions to legislators most responsible for passing SB 3, the elected Commissioners of the Railroad Commission, the Lieutenant Governor, and the Governor, immediately after the end of the regular legislative session. While outside the scope of this docket, we hope that the Legislature will prevent gas producers from bilking consumers in the future, and that windfall profits gained during the February freeze can be used to help electric consumers with bill relief.

Beyond the failure to weatherize, we believe that the PUC and ERCOT have neglected to reform the process for building out the transmission system, and have failed to require adequate investments in both large and small transmission solutions. Irrespective of market design,

transmission solutions -- including non-wires alternatives - should be addressed to assure a robust, reliable electric grid. Similarly, under the recently approved budget bill (SB 1), the PUC is required to study the potential to create additional ties with nearby electric grids such as SPP, SERC, and the Mexican Grid. We believe there is a way to create additional resources through grid integration and do so in a way that protects ERCOT's independence.

Texas must prioritize consumers in decisions about our electric grid. Consumer-focused energy solutions such as building modernization, including implementation of the latest energy codes and retrofits of existing building stock, distributed generation, expanded energy efficiency and demand-response programs, would help stabilize the grid, lower electric peak and overall demand, help with transmission congestion, and lower costs to consumers. We must demand that our customers be insulated from corporate shortcuts and myopic decisions, such as inadequate power plant and gas supply weatherization. Our relentless focus on market-based policies has quite literally left consumers out in the cold, by failing to provide safeguards for a robust, sustainable grid or parasitic billing practices, without specific bill relief programs such as the System Benefit Fund, which was phased out by the legislature several years ago.

Finally, there is no disputing that climate change has made weather extremes more frequent, putting a stress on the grid that was not present even just 20 years ago when the market was fundamentally changed with deregulation of our energy market in 2001. The most recent IPCC report makes clear that those climate extremes will continue and will become worse, meaning we must build a more resilient, reliable, flexible grid going forward.

Before turning to the questions contained in the docket, we recommend that the Public Utility Commission ensure that consumers of electricity come first in any proposed redesign, continue the practice of non-discrimination against any source of electricity, and put demand management at the center of solutions. We also want to see the Public Utility Commission better include the public in these discussions.

Any market reforms must benefit the people who consume energy in Texas, first and foremost. Energy consumers, small and large, but especially working Texans with limited income must be able to have their basic electricity needs met. All Texans need to be able to manage their personal use; they should have access to clean sources of energy, be able to get help paying bills, be able to make their homes and businesses more efficient, and be able to directly provide electricity through self-generation, and should they wish it, have access to programs that shift peak use or shed load. In other words, the PUC must include the Public, the consumers who ultimately pay the energy bills, in the energy market redesign.

In addition, we should not ignore the demand-side of the equation. As an example, in a recent report, researchers from the American Council for an Energy Efficient Economy highlight how energy efficiency and demand side management strategies can play a meaningful role in meeting grid reliability needs.¹ As a state, we must invest more directly in energy efficiency and

¹ ACEEE, see blog post "Texas Blackouts Offer Lesson in Reducing Dangerous Spikes in Energy Demand," available at <https://www.aceee.org/blog-post/2021/02/texas-blackouts-offer-lesson-reducing-dangerous-spikes-energy-demand> , 2021.

modernizing the buildings where we live and work. Our homes, apartments, small businesses, schools, as well as community centers, and places of worship must be made more resilient to assure we can survive coming heatwaves and winter storms. Millions of Texans and small businesses waste electricity through older building stock and outdated air conditioning and heating systems that have not been modernized, contributing to high demand and straining our growth. Texans died during the freeze because our many Texans lived in leaky, energy-inefficient, homes. Energy efficiency should be our first resource in meeting our energy needs, not an afterthought. The Commission must take steps to increase the use of this resource, including by opening a rulemaking on raising the state's energy efficiency goals. While Texas was the very first state to implement an Energy Efficiency Resource Standard, according to the ACEEE, today we are ranked 28th -- dead last among those states that have an EERS. Leading states have set required goals of one, two or even three percent energy savings.

Table 1. Current Levels of Peak Demand and Energy Savings in EERS, 2020

Category	2019 Peak Demand Achieved	2019 Savings Achieved	Estimated 2025 1% Goal (inclusive of 2019 Savings)
ERCOT Utilities	420 MWs	547 GWhrs	2,150 GWhrs
Texas Total	481 MWs	654 GWhrs	2,436 GWhrs(1)

(1) We estimate these savings would also lead to an additional 505 MWs within ERCOT and 580 MWs in demand reduction at peak statewide.

The Sierra Club, and many other consumer, environmental and business organizations supported legislation in regular and special session(s) that would create an energy savings goal of one percent by 2025; the Commission has the authority to raise our current energy efficiency goals through regulatory action without legislative action, as it previously did in 2010. In the absence of action from the State Legislature, the Commission should step up to the plate and implement cost-effective changes to energy efficiency rules. By expanding residential and commercial energy efficiency programs, the Commission will create jobs, lower costs for consumers, reduce transmission costs, and make the grid more resilient. We recognize that other programs -- such as the potential for hundreds of millions of dollars delegated through the federal weatherization programs overseen by the TDHCA and energy efficiency loan programs and action on adopting the 2021 building codes regulated by the State Energy Conservation Office -- would also benefit the electric grid, but are outside the scope of the PUC' regulatory authority.

Moreover, we believe reforms must encourage, not discriminate against, renewable energy and battery storage. The idea that we would pay more for electrons that are delivered to market simply because they came from a "dispatchable resource" or was created by burning fossil fuels not only runs contrary to good market principles, but it also creates a disincentive to move towards a cleaner grid. In fact, the more traditional dispatchable resources such as coal, nuclear and gas failed us in winter storm Uri, and we must move to new energy sources such as a combination of wind, solar, geothermal, storage, and demand response, and more "distributed" smaller

generation sources. Given the reality of climate change, and the real impacts of other forms of air pollution in Texas's major urban areas, we must create a market that will move us forward, not back.

Furthermore, market reforms should allow all energy resources to participate in energy and ancillary service markets as long as they can meet the rules. This includes control of energy demand through smart meters, smart appliances and other demand response programs, as well as energy storage and distributed energy technologies like solar and even fuel cells. Both -- both in front of and behind the meter distributed energy resources should be included, again as long as they can meet reasonable registration and performance standards. Local energy solutions contribute to needed generation, help control demand, and price support -- helping to create a safe, resilient, and flexible grid. Along these lines, we would recognize that ERCOT has made substantial progress in getting smaller distributed technologies to register with ERCOT for greater visibility, and ERCOT has now approved multiple changes to allow distributed resources to better participate in the electric market. However, this participation has been limited mainly to "Settlement-Only" storage and distributed generation. In other words, these distribution resources can get paid, or settled at the nodal price if they provide energy, but can not actively bid into the market. Instead, ERCOT and PUC must work together to set rules so that distributed resources can more fully provide both energy and ancillary services, including either as direct participants or through aggregation of smaller resources by a third-party in a geographic location. Because some of this generation is "behind-the-meter" consumer generation, opening up our markets more directly to consumers will benefit all Texans. Many Texans also participate in community-level resources like community solar and allowing these resources to directly participate in the market, subject to meeting certain market rules, could allow for local energy solutions that can be located close to loads and provide multiple benefits.

Finally, we must work to put the Public back into the Public Utility Commission. Any discussions regarding market design reforms should center, first and foremost, the people of Texas. Even in the current discussion, the public has largely been absent. Thus, the Commission has required that stakeholders be invited by the Commissioners and/or staff in order to comment on these proposals during the workshop. While any person could submit written testimony, there is no ability for "normal" members of the public to participate in decisions that will directly impact them. None of the PUC workshops hosted thus-far have allowed members of the general public to offer comments or presentations on the matters being discussed. As any proposed market reform will impact energy consumers, the Commission should have a brief time at the beginning of each workshop where any member of the public can offer public comments. Furthermore, we believe that at least one workshop should be open for any stakeholder that requests time to make a presentation. In this way the public can be involved in the decision-making process of the Public Utility Commission.

We offer brief comments to the questions below and look forward to expanding on these comments in the future.

1. What specific changes, if any, should be made to the Operating Reserve Demand Curve (ORDC) to drive investment in existing and new dispatchable generation? Please consider

ORDC applying only to generators who commit in the day-ahead market (*DAM*). Should that amount of ORDC-based dispatchability be adjusted to specific seasonal reliability needs?

The ORDC is determined through different inputs, including the Value of Lost Load which is set at the price cap of \$9,000, as well as “x” which sets a minimum contingency level of 2,000 MWs, and then the slope of the probability of lost load. One issue that is complex is that the Value of Lost Load may differ greatly for residential customers versus large industrial customers. For most residential customers, \$9,000 is not reflective of their VOLL, meaning we have designed a market that is for large industrial customers. Setting the VOLL and overall maximum energy price cap at \$9,000 does not make sense for most energy consumers, and instead the Commission should lower the VOLL and create a more “gentle” slope on the ORDC. A \$9,000 price cap and VOLL is problematic for residential consumers because electricity is a basic need. A more shallow slope on the ORDC would reward generators that produce power in times of scarcity, but not depend on an extreme scarcity situation when other resources like ERS are likely to be utilized; it is important to incentivize generation as supply starts to become more scarce—in other words, to not only apply the price-adder when supply becomes incredibly tight. Lowering the VOLL and smoothing the curve could better protect residential consumers from extremely high prices.

We are opposed to any proposal that would only allow generators that commit in the Day-Ahead Market to receive the ORDC price-adder. The ORDC price-adder should be paid to generators that generate electricity when the conditions lead to the use of the ORDC on a non-discriminatory basis. This should include distributed energy generators as well, as long as they can meet registration and other requirements. To the extent that loads can be more fully integrated into the real-time energy market, then the ORDC payment should be available to those resources as well for offering a “negawatt” that is provided. Customers should be able to get paid for voluntary demand reductions at that spot market rate if they are able, but otherwise the default should be that residential customers are protected from or hedged against this price volatility.

Finally, we would note that the importance of the ORDC to provide the “missing money” will be reduced when ERCOT fully implements real-time co-optimization where ancillary services and energy markets are optimized. At that time, the PUC should consider further tweaks to the ORDC or its elimination.

2. Should ERCOT require all generation resources to offer a minimum commitment in the day-ahead market as a precondition for participating in the energy market?

We strongly oppose any requirement to force entities to participate in the day-ahead energy market, or provide a minimum guarantee of energy, other than for ancillary services where it makes sense to create certainty to assure that reserves will be present. The day-ahead market is a voluntary financial market—this allows energy producers to *voluntarily* offer expected amounts and prices of different sources and amounts of energy products, while allowing energy consumers (or entities that serve energy consumers) to potentially lock in these prices. It is a useful tool that leads to important bilateral agreements and helps form prices, and it gives a signal to what may be needed in the real-time market. It has been particularly important as well for offering ancillary

services, and for allowing load serving entities to contract for those services. But making it required for all generators providing energy would create more problems than solutions and increase costs to consumers and would not guarantee reliability.

Indeed, hours before the full impact of winter storm Uri, a substantial amount of coal, gas, nuclear was committed, online and generating power, and it was those plants failing and becoming unavailable that led to blackouts. And they could have easily brought more online if it was available within a couple hours but there wasn't anything to bring online. Having more generation committed in the DA market wouldn't have solved that in any way.

As Texas continues to increase investments in variable resources like wind and solar, we will need to continue to refine our forecasting tools to help better meet “net-load.” But requiring minimum commitments is not the way to do this. We would support looking at a third “in-between” market. Previously, ERCOT has approved a “look-ahead” SCED concept (mainly to help with load price formation), and having an additional market to actually commit resources several hours ahead of the real-time market could be a market where more definitive commitments could be made. Such a look-ahead or peak-ahead market could be used to assure reliable energy during peak and post-peak seasonal demand. Additional ancillary services could also be contracted prior to the real-time market, as well as the addition of some ancillary products.

3. What new ancillary service products or reliability services or changes to existing ancillary service products or reliability services should be developed or made to ensure reliability under a variety of extreme conditions? Please Articulate Specific Standards of reliability along with any suggested AS products. How should the costs of these new ancillary services be allocated?

Currently, ERCOT has made available three main ancillary products -- frequency response, regulation, and “non-spin.” In recent years important changes have been made including expanding the ability of loads to provide frequency response, the addition of a “fast-frequency” response and fast regulation product, as well as the addition of and eventual replacement of non-spin with a 10-minute product known as ECRS (ERCOT Contingency Reserve Service) that will be created in 2022. These are good changes but further refinements may be needed. In particular, ERCOT and the PUC should determine what the needs are to be eligible for any ancillary service product, and allow any entity—distributed generation or storage, transmission-level storage, renewable and fossil fuel-based dispatchable technology, and non-controllable and controllable loads—that can meet those criteria for eligibility to provide ancillary services. As an example, non-spin resources are today provided by gas and coal plants, but there is no reason to prohibit other resources that can meet non-spin eligibility requirements from providing these services—they may even be able to do so more cost-effectively. This would include controllable and non-controllable loads. Similarly, if distributed technologies—including aggregation of smaller resources—can meet the criteria for frequency or regulation, then they should be eligible to provide that service.

Sierra Club does believe that an additional seasonal ancillary service may be warranted. This service would be designed to enhance reliability seasonally and would be adjusted every year as

the mix of generation resources changes. While frequency, regulation and ECRS are key to meet short-term emergencies and are essentially available for short periods, if there is a multi-hour event that could lead to brownouts or blackouts, having a seasonal product meant to cover peak and post-peak periods would be a cost-effective solution. For example, Texas is now blessed with abundant solar resources that are predictable, growing and providing energy in the late afternoon. However, as we rely more on this resource--at times combined with storage--there may be some early evening hours in the summer where fluctuations could impact reliability depending upon cloud cover and the advent of windier conditions when wind resources come to play. Having a seasonal product that is opened each morning for bidding for late afternoon as conditions change could help tremendously. In designing a multi-hour product, the PUC and ERCOT should assure that all entities that can meet the attributes can compete to provide the service. The amounts and timing of when the market is opened could change seasonally. As an example, in the winter it may make sense to provide the service for the early mornings when demand can shift suddenly, as we saw during winter storm Uri. Thus, a sudden cold temperature combined with a sudden loss of windy conditions can strain the market, and a multi-hour product could offer stability.

Ultimately, consumers pay for both energy and ancillary services no matter how the cost is allocated. The present allocation of costs to Load Serving Entities is efficient. Should the PUC decide to allocate costs to generators then it should be allocated to all generation resources based on cost-causation principles not allocated only to variable resources.

4. Is available residential demand response adequately captured by existing retail electric provider (REP) programs? Do opportunities exist for enhanced residential load response?

Unfortunately, Texas has much less experience in the realm of demand response and load management programs for residential and small consumer customers than other markets. A review of the top 40 retail electric providers reveals that only a handful offer demand response programs. Information provided to the EIA shows that REP programs only amount to less than 100 MWs of demand response, when the potential is for thousands of MWs.

In addition to REPs, IOUs do run residential and commercial load management programs through the energy efficiency programs required by state law as part of the Energy Efficiency Resource Standard of 0.4 percent of peak demand, but the total within ERCOT is only in the 100s of MWs, and many times the “capacity” of these programs is not used, since they are generally only called during an EAA event.

Additionally, there are some “weather-sensitive” loads that participate in the Emergency Response Service, and loads that provide frequency response, but again this is a very small amount of load and is mainly provided by large energy consumers.

Instead, Texas should be taking advantage of its expensive ratepayer-backed investment in smart meters and make programs that work for people. First, the Commission currently caps the annual ERS budget at \$50 million; that could be expanded with specific ways for residential and commercial weather-sensitive loads to participate. Second, the Commission should consider requiring all REPs greater than a certain minimum size to offer demand response programs. Third,

Texas could increase the amount of residential and commercial load management by increasing the energy efficiency goals and requiring that IOUs have programs that are actually used by consumers--and not only when an EEA is called. We would suggest that both summer and winter peak shaving programs be required since currently IOUs rely nearly solely on summer peak programs.

Moreover, Texas must allow all consumers who want to directly control their energy use through demand response to do so using tools like Smart Meter Texas and other energy management strategies. Most importantly, common rules around the participation of third-party energy management companies and demand response providers--with the permission of the energy consumer--should be developed.

Consumers should be allowed to control their own energy use and power in a number of ways and our market should help them. Allowing sophisticated consumers to participate in ancillary services (likely through a REP or third party) by allowing aggregation of loads, and paying consumers for that service, could be a huge boon for grid reliability.

Table 2. Current Levels of Demand Response in the ERCOT Market

Category	Amount in MWs	Notes
REP Specific Programs Such as Indexed Market and Peak Rebates (1)	797 MWs high includes residential and non-residential	From ERCOT 2020 Survey
Reported Load Management from IOUs	420 MWs	From 2019 reports. Note that this figure represents capacity of the programs. They are generally only used in EEA events.
Loads awarded RRS (2)	1,146 to 1,856 MWs	ERCOT 2020 DR Report; Virtually all industrial loads
NOIE 4CP and Other DR Products	Approximately 1,500 MWs in 4CP and Price-Responsive	ERCOT 2020 Survey
ERS DR	764 to 968 MWs capacity for 30-minute product. Note approximately 300 of this is provided by distributed generation.	ERCOT 2020 Survey - note that ERS includes 10 and 30 minute products and weather sensitive and non-sensitive products

- (1) This does not include 4CP programs in the competitive areas. The 2020 ERCOT survey found that there were approximately 1,400 MWs of DR for 4CP and near-4CP events. These appear again to be mainly industrial and large customer loads.
- (2) Note in addition to loads that provided RRS, a few loads were able to qualify as controllable load resources and provide approximately 100 MWs of other ancillary service such as regulation.

Beyond traditional demand response, the use of onsite solar, storage, and even electric cars and trucks, as regulators of energy use, and as back-up power could be used in energy and ancillary markets, and is already helping to reduce peak. With thousands of Texans with onsite solar

systems, many now with storage, and a burgeoning electric vehicle market, we should enable residential consumers to contribute to meeting our energy supplies and reducing energy demand at peak times.

Table 3. Current Distributed Generation Installed in ERCOT

Category	MWs Renewable (may include storage)	MWs Non-Renewable	Notes
Unregistered (less than 1 MW), ERCOT minus AE and CPS energy	774	13	ERCOT, 2nd quarter unregistered DG report
Unregistered, Austin and San Antonio	312	20	ERCOT, 2nd quarter unregistered DG report
Registered, 1 MWs to 10 MWs DG	345	505	ERCOT 2020 Presentation
Total	1,431	538	

Finally, while this is a longer term effort, figuring out how to develop “loads in SCED” so that loads can offer energy bids (a negawatt) into the market would obviously put demand response on a more equal footing with energy production. A bid to sell a negawatt would be more valuable than price-responsive demand response, which is reactive rather than proactive.

5. How can ERCOT's emergency response service program be modified to provide additional reliability benefits? What changes would need to be made to Commission rules and ERCOT market rules and systems to implement these program changes?

One change would be to increase the annual budget from \$50 million to \$100 million, or alternatively eliminate the cap altogether and then determine ERS needs. ERS is presently provided by both demand response and back-up power (usually gas or diesel), but there is no reason that storage and other distributed resources, as well as aggregations of those resources could not compete to provide ERS. ERS should be expanded as another reliability tool with access for more types of resources.

6. How can the current market design be altered (e.g., by implementing new products) to provide tools to improve the ability to manage inertia, voltage support, or frequency?

Concerns have been raised that as the amount of variable generation increases that the entire system could suffer from low inertia. The PUC and ERCOT could consider adding an inertia-response service. We would suggest that both traditional “spinning” machines and a “synthetic” inertia response service that could be met with smart inverter technology from wind, solar and energy storage be able to compete to provide this service to prevent low inertia conditions.

As mentioned, allowing full participation of distributed technologies -- including through aggregation -- could also be useful in providing other needed support to keep the grid reliable and balanced, including voltage support and frequency.

The Lone Star Chapter appreciates the opportunity to file these brief comments and looks forward to engaging with Commission staff and the Commissioners in making changes to the ERCOT market.

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